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PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional)

LB-1035-506

Application Number

10/828,475

Filed

April 21, 2004

First Named Inventor

DOTTA et al.

Art Unit

2811

Examiner

Nadav, O.

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).

Note: No more than five (5) pages may be provided.

I am the

☐ Applicant/Inventor

☐ Assignee of record of the entire interest. See 37 C.F.R. § 3.71. Statement under 37 C.F.R. § 3.73(b) is enclosed. (Form PTO/SB/96)

☒ Attorney or agent of record 61,377
(Reg. No.)

☐ Attorney or agent acting under 37CFR 1.34.
Registration number if acting under 37 C.F.R. § 1.34 _____

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Typed or printed name

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Requester's telephone number

October 28, 2008

Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below.*

☒ *Total of 1 form/s are submitted.

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STATEMENT OF ARGUMENTS

The following listing of clear errors in the Examiner's Office Action is responsive to the Office Action mailed August 28, 2008, each of which errors independently should result in reversal and withdrawal of the rejections.

APPLICANT'S ADMITTED PRIOR ART ("AAPA") DOES NOT ANTICIPATE

CLAIM 18

The rejection of claim 18, as allegedly being anticipated under 35 U.S.C. §102(a) over Applicant's Admitted Prior Art ("AAPA") is respectfully traversed. AAPA fails to disclose or even remotely suggest each and every limitation set forth in the claim. Anticipation requires that "each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference", *Verdegaal Bro. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987) (MPEP § 2131).

AAPA (i.e., Figs. 16-17) does not show "an opening of the hole is smaller than the aperture section of the field oxide film", as required by claim 18.

The Examiner alleged that the opening of the hole in the semiconductor substrate is smaller than the aperture section of the field oxide film in the device shown in Fig. 16 (representing AAPA), because "the opening of the hole is the width of the penetrating electrode 115, and does not include insulating layer 109", see p. 9 of the Office Action, whereas "[the] aperture section of the field oxide film 102 being the width of layers 109 and 115". The above assertion is incorrect. The description of the formation of the device of Fig. 16 makes it clear that the width of the hole formed in the substrate is substantially equal to the sum of the width of the penetration electrode 115 and the width of the insulator film 109. For example, the specification, describing the device of Fig. 16, states "Note that an insulting film 109 is formed between the penetration electrode 115 and the semiconductor substrate 101", lines 7-9, p. 5. In other words, the substrate extends only up to the insulating film 109, and therefore the hole, which is defined as the lack of substrate material, does not include the insulating film 109.

In addition, as can be seen from Fig. 18, depicting the formation of the penetration electrode, the hole 106 formed in the substrate 101 is actually larger than the aperture 108b of the field oxide film 102. After the formation of the hole in the substrate, insulating layer 109 is applied in the interior of the hole (Fig. 19). From the above it is very clear that the hole width is more than the width of the penetrating electrode, and it is truly represented in Fig. 19. Therefore, AAPA fails to teach “an opening of the hole is smaller than the aperture section of the field oxide film”.

CLAIMS 1, 18 AND 19 ARE NOT OBVIOUS OVER MASHINO ET AL. (US 6,699,787) IN VIEW OF UEHARA (US 5,262,671) AND KO (US 6,989,108)

The rejection of claims 1, 18 and 19 under 35 U.S.C. §103(a), as allegedly being unpatentable over Mashino et al. (US 6,699,787) in view of Uehara (US 5,262,671) and Ko (US 6,989,108), is respectfully traversed.

The Examiner cited Mashino as disclosing a device comprising a substrate 201 having a hole, a pad electrode 211 having an aperture section, and a penetration electrode 217 passing through the hole and the aperture section of the pad electrode. The Examiner acknowledged that Mashino fails to disclose a field oxide film with an aperture section, wherein the penetration electrode passes also through the field oxide film aperture, and the opening of the hole is smaller than the aperture section of the field oxide film. He then turned to Uehara for the missing limitation.

Uehara discloses a semiconductor device comprising various electrodes 4 on a substrate, wherein a field oxide film 2 is formed between substrate 1 and a pad electrode 6 (Fig. 2, lines 23-34, col. 4). Unlike the Examiner’s assertion (p. 4 of the Office Action of August 28, 2008), the field oxide film lacks an aperture section. In addition, the pad electrode 6 lacks an aperture as well.

In contrast, in the device of claims 1, 18 and 19, the field oxide film comprises an aperture which is larger than that of the hole in the substrate. Such structure is not obvious from

any of Mashino or Uehara.

Ko apparently has been cited for disclosing field oxide regions on a semiconductor substrate and it does not provide any of the missing limitations in the combination of Mashino/Uehara.

In response to Applicant's arguments regarding the lack of an aperture in the field oxide film and the pad electrode in Uehara's device, the Examiner asserted (see p. 8 in the Office Action of August 28, 2008) that "the field oxide film is formed in a circle and the inside of the circle is the aperture section", and that "[the pad electrode] is also formed in a circle over the field oxide film and thus rendering the distance between two opposite portions of the pad electrode as being the aperture section".

It is submitted that the field oxide film 2 in Uehara is applied over the whole area of the semiconductor substrate 1 (col. 4, lines 26-27). It is not formed in a circle having an aperture in the inside of the circle. Therefore, Uehara does not teach or suggest a field oxide film having an aperture, and moreover the aperture having a size smaller than a hole in the substrate.

For the above reasons, claims 1, 18 and 19 are allowable.

It is respectfully requested that the rejection of dependent claims 5-9, 17, 22-24 and 26-27, all dependent from claims 1 or 19, also be withdrawn.